

Julie Saare-Edmonds  
DWR

Ms Saare-Edmonds:

I have been designing irrigation systems in Southern California and elsewhere for over 40 years. The proposed requirements for water use raise a number of red flags for me. Here are some of my concerns:

#### Independent panel

The independent panel that came up with these proposals needs to be known. Are they government employees? Are they agricultural representatives? Irrigation designers? Horticultural experts? I question this because of the odd mention of mining interests as a specific item, rather than their being included in the general requirements for everyone. Is there an agenda here? A personal interest on the panel?

#### Decrease in the drought

I also see no mention of a 'trigger' that will be used to signal the need for these restrictions. Granted, the State is probably at a worst case need already, but it makes sense to me that the restrictions be tied to a specific measurable event, so that if the conditions improve the State is not held to the same drastic restrictions.

It also makes sense to have a tiered setup rather than a knee-jerk reaction once things are so far along that drastic action needs to be taken. For example, the tiered requirements can be tied to the snowpack amounts and subsurface aquifer levels. If the snowpack hits a certain level, like 10% of average, this trigger sets the levels of water use by adjusting the ETAF. A snowpack of 10 to 25% relaxes the requirements a bit, and on up – this ties directly to the proposed "watershed approach", and sets specific requirements based on the severity of the drought conditions, and releases them if the drought ends and water levels normalize.

If aquifer levels are not currently measured, this needs to be studied and quantified. Groundwater depletion as a result of these emergency measures can have long range consequences, so there needs to be considerations of the effect this proposal will have on the subsurface levels. Will these requirements cause domestic wells to start to go dry?

#### ETAF levels

I feel that an ETAF of 0.4 is too low for reasonable sustainable planting, and defer to horticulturalists that can give a more reasonable level. Anything below 0.55 is asking plantings to be stressed to the wilting point, and in addition, will be so low in moisture content that they become a fire safety hazard. The amount of water needed to fight an urban wildfire will far outweigh the water savings, and it will only take one major fire with loss of property and lives to negate the entire program in the public's eyes.

If the intent is to eliminate turf use in commercial properties, using a low ET is irresponsible. It is overly stressing all the other plant materials just to eliminate some high water using materials. If you want to eliminate turf, just say no turf.

I do not see any indication that these levels reflect the local climatic conditions and plant communities. I can't see how the same level can be used in the high mountains and also in the deserts. The evaporation rate differs so much in how it occurs that the requirements need to be adjusted for the climatic regions of the State, similar to or by use of the Sunset Magazine Climate Zones.

The examples included in the current draft proposal also indicate an ETAF level of 0.3, which to me is unattainable. Hopefully this is just an oversight.

#### Irrigation Efficiency

Expecting an average irrigation efficiency of 85% is rather high and an average efficiency of 92% is unrealistic. There are too many variables to use this as an average, even with weather driven or sensor dependent systems. If there is currently sufficient data to back up these efficiency levels, the proposed changes need to give specific examples of the types of systems that qualify.

The current Model Landscape Ordinance gives efficiency ratings of systems as an average of 0.71, which is a reasonable average and until there are studies done to set realistic rates for more specific types of systems such as sensor or weather control systems, anything higher than that is suspect. Designers need hard data from manufacturers about their products efficiencies, especially if they are capable of an efficiency of above 85%. Certain types of irrigation are more efficient, such as drip, but the applications are quite specific for these irrigation types so trying to fit them into every scenario is untenable.

#### Precipitation Rate

Setting the precipitation rate at .75 to eliminate spray heads is again the back end of the problem. In AB 1881, it was tied to zero runoff per soil type. This is reasonable, as are the other design solutions such as positive drainage from impermeable surfaces to planted areas. Limiting design based on users improperly adjusting their systems makes no sense.

Restrictions in place now are design solutions that are managing the runoff and overspray problems. I do not think there is any evidence that these are not working, so there is no need to eliminate spray heads.

Since the precipitation rate is amount per unit of time, demanding a low precipitation rate head means the systems will need to run longer to apply the same amount of water. This impacts large projects that are tied to specific "water windows" that only allow irrigation for specific hours per day. With low precipitation heads, the water window closes before the desired water application is accomplished.

Using 'normal'

spray heads for short periods of time, followed by time to allow full percolation, and then additional applications does two things. It allows the soil to absorb water at its optimum rate, and if moisture sensors are part of the control system they can determine that additional irrigation may not be needed, or allow another water application.

This also allows currently available irrigation equipment to be used immediately, instead of assuming that manufacturers can create lower precipitation heads that can still provide uniform coverage. The physics of nozzle design are not trivial, and there are a lot of things like optimal droplet sizes to overcome wind conditions that need to be considered. There is ample data that supports current design parameters and change by committee or decree will not magically create usable products.

#### Mulch

The statement that mulch requires low volume irrigation is backwards.

Mulch helps water infiltrate more easily and can allow more water applied than bare soil before any runoff occurs. Since mulch is required in all landscape areas other than turf and water features, this requirement forces low volume irrigation everywhere.

### Water Managers

I would include a requirement for projects of a certain size – say shopping mall size, to hire a permanent water manager who would be responsible for maintaining the water use efficiency desired by the ordinance. The manager can spot inefficiencies and get them corrected in a timely manner, and keep the water application tuned to the site more closely than a 'smart' controller. In many instances, the savings in water costs offset the salary for the manager. The water manager is a point of reference for both the owners and the ordinance requirements, and I feel will be more successful than all of the manipulations of the adjustment factors and precipitation rates.

Thank you for your consideration in these matters.

Richard Blanchard